WHAT IS CLAIMED IS:

1. A method of correcting for sensor drift, in color calibration for a printer; said method comprising the steps of:

printing on a printing medium a test pattern for each of at least one colorant;

scanning a sensor, along a scanning direction, over each test pattern and at least one adjoining tonal reference area of the medium;

wherein the printing step comprises disposing each said test pattern next to, along the scanning direction, the at least one reference area;

whereby said scanning step comprises the step of exposing the sensor to each respective reference area, along the scanning direction; and

interpreting the sensor response to each said reference area, to adjust the sensor response to at least one part of each test pattern.

2. The method of claim 1, wherein:

the printing step comprises disposing each said test pattern between, along the scanning direction, at least two of said reference areas.

3. The method of claim 2, wherein:

at least two of said reference areas are unprinted areas of the medium.

4. The method of claim 1, wherein:

the at least one reference area is an unprinted area of the medium.

5. The method of claim 4, wherein:

the printing step comprises printing said test pattern for each of plural colorants.

6. The method of claim 3, wherein:

the printing step comprises printing said test pattern for each of plural colorants.

7. The method of claim 2, wherein:

the printing step comprises printing said test pattern for each of plural colorants.

8. The method of claim 1, wherein:

the printing step comprises printing said test pattern for each of plural colorants.

9. The method of claim 1, wherein:

the printing step comprises printing said test pattern for each of plural colorants in succession.

10. The method of claim 1, wherein:

the printing step comprises printing as each test pattern a sequence of color patches at various tonal levels; and

the interpreting step comprises applying the sensor unprinted-area responses to adjust the sensor response to substantially each color patch in at least one of the plural test patterns.

11. The method of claim 10, wherein:

the applying step comprises applying the sensor unprinted-area responses to adjust the sensor response to substantially each color patch in substantially all of the plural test patterns.

12. The method of claim 11, wherein:

the applying step comprises interpolation between two sensor unprinted-area responses obtained at ends of each sequence of patches.

13. The method of claim 11, wherein the interpolation is based upon an interpolation model selected from the group consisting of:

an assumed mathematical function interrelating the responses at the ends of each sequence, with scan positions within each sequence; and

a succession of levels separately measured for media-point responses during a preliminary precalibration scan.

14. The method of claim 13, wherein:

the preliminary precalibration scan is not made automatically in field operations but only at the factory.

15. The method of claim 13, wherein:

the preliminary precalibration scan is made automatically in field operations but is not applied in absolute terms, and rather is used only for proportioning the interpolation between the two responses obtained at the ends of each sequence of patches.

16. The method of claim 11, wherein:

the printing step comprises automatically arranging some of the patch sequences for each test pattern, selectively either side-by-side or one above the other on such printing medium so as to fit an available size of such medium;

said disposition of each sequence between two unprinted areas is maintained notwithstanding said automatic selective arranging; and

said steps of exposing said two adjoining unprinted areas, and interpreting said two sensor unprinted-adjoining-area responses, are maintained notwithstanding said automatic selective arranging;

whereby the method is robust to use of different printing-medium sizes.

17. The method of claim 16, wherein:

the printing step comprises printing the patches, within each sequence, in alternation between two extreme thitherto-unprinted tonal values of the sequence;

whereby for each colorant, to provide a roughly constant printing activity during the printing step:

highest and lowest tones appear side by side at one end of each sequence, and

two closest-valued middle tones appear side by side at an opposite end of each sequence.

18. The method of claim 16, wherein:

the printing step comprises printing the patches, within each sequence, in alternation between two most-nearly-central thitherto-unprinted tonal values of the sequence;

whereby for each colorant, to provide a roughly constant printing activity during the printing step:

two closest-valued middle tones appear side by side at an one end of each sequence, and

highest and lowest tones appear side by side at an opposite end of each sequence.

19. The method of claim 1, wherein:

the printing step comprises scanning at least one marking printhead along the scanning direction to form the test pattern.

20. An apparatus for printing an image hardcopy on a printing medium; said apparatus comprising:

at least one printhead for marking on such medium;

a processor for controlling the at least one printhead to discharge inkdrops in a pattern to form such image; and

means for color-calibrating the at least one printhead; said means comprising:

portions of the processor for operating the at least one printhead and the carriage to form a color-calibration test pattern, said test pattern being formed on such medium adjacent to at least one reference area,

at least one light source for scanning across the test pattern and the at least one area to illuminate the pattern and the at least one area,

a sensor for scanning across the pattern and at least one area, with the at least one source, to measure illuminated colors in the test pattern and the at least one area,

means for interpreting measurement signals from the sensor, to correct the sensor output signals for drift due to incomplete warmup;

said interpreting means comprising processor portions for:

isolating measurement-signal segments representing the at least one area to establish a tonal-reference calibration level, and

applying the calibration level to correct the measurement signals due to the measured illuminated colors.

21. The apparatus of claim 20, further comprising:

a scanning carriage for carrying the at least one printhead across such medium to form such image; and

wherein the processor comprises components for coordinating the carriage and the at least one printhead to form such image.

22. The apparatus of claim 20, wherein:

the light source comprises a light-emitting diode.

23. The apparatus of claim 20, wherein the interpreting means comprise:

an analog-to-digital converter for receiving the measurement signals and deriving therefrom converter output signals representing the measurement signals; and

portions of the processor for interpreting the converter output signals, to correct the converter output signals for drift due to incomplete warmup.

24. The apparatus of claim 20, wherein:

each reference area is an unprinted area of such printing medium;

whereby the tonal-reference calibration level is a medium-point calibration level.

25. The apparatus of claim 24, wherein:

said at least one reference area comprises plural unprinted areas of such printing medium; and

said test pattern is formed on such medium between at least two of said plural unprinted areas.

26. The apparatus of claim 25, wherein:

the at least one printhead comprises plural printheads.

27. The apparatus of claim 24, wherein:

the at least one printhead comprises plural printheads.

28. The apparatus of claim 23, wherein:

the at least one printhead comprises plural printheads.

29. The apparatus of claim 23, wherein:

said at least one reference area comprises plural reference areas; and

said test pattern is formed on such medium between at least two reference areas.

30. An economical apparatus for printing an image hard-copy on a printing medium, and for obtaining near-colorimetric quality although said apparatus has inexpensive components; said apparatus comprising:

at least one printhead for marking on such medium, said at least one printhead being subject to marking tolerances that require color calibration;

at least one processor having portions for controlling the at least one printhead to discharge inkdrops in a pattern to form such image; and

means for color-calibrating the at least one printhead; said means comprising:

portions of the processor for operating the at least one printhead to form a color-calibration test pattern, said test pattern being formed on such printing medium adjacent to at least one reference area, of such printing medium, that provides a tonal-reference calibration level,

plural light-emitting diodes for scanning across the test pattern and the at least one reference area to illuminate the pattern and the at least one area, temperature dependence in the diodes leading to drift of illumination level during warmup,

a sensor for scanning across the pattern and at least one area, with the diodes, to measure illuminated colors in the test pattern and to measure the at

least one reference area, whereby the illumination drift leads to drift of measurement signals from the sensor,

an analog-to-digital converter for receiving the measurement signals, nonlinearities in the converter making measurements of small signal differences on a large signal pedestal undesirable, wherefore the diodes are used in alternation rather than continuously, and therefore never fully complete warmup, and

means for compensating for incomplete diode warmup;

said compensating means comprising portions of the processor for interpreting output signals from the converter, to correct the converter output signals for drift due to said incomplete warmup;

said interpreting portions comprising processor portions for:

isolating converter-signal segments representing tonal-reference calibration level, and

applying the tonal-reference calibration-level segments to correct the measurement signals due to the measured illuminated colors;

whereby the apparatus accommodates the printhead tolerances and diode temperature dependence, and avoids the converter nonlinearities.

31. The apparatus of claim 30, for use in image printing based upon image data received or generated by the apparatus; and further comprising:

a scanning carriage for carrying the at least one printhead across such medium to form such image;

wherein the at least one processor also has portions for coordinating the carriage and the at least one printhead to form such image; and

wherein the processor controlling portions comprise portions for performing calculations used respectively in:

color corrections to such image data if desired,

rendition to exchange resolution for color depth,

ink depletion to avoid placement of excessive colorant on the printing medium, and

printmasking to allocate inkdrop discharge as between successive scans of the scanning carriage.

32. The apparatus of claim 30, wherein:

the processor operating portions comprise means for printing said test pattern in each of plural colors respectively, and for each color as a sequence of color patches at various tonal levels; and

the processor interpreting portions comprise means for applying the sensor reference-area measurements to adjust the sensor measurement for substantially each color patch in at least one of the plural test patterns.

33. The apparatus of claim 32, wherein:

the applying means comprise means for applying the sensor reference-area measurements to adjust the sensor measurement for substantially each color patch in substantially all of the plural test patterns.

34. The apparatus of claim 33, wherein:

the applying means comprise means for interpolation between two sensor reference-area responses obtained at ends of each sequence of patches.

35. The apparatus of claim 34, wherein the interpolation is based upon an interpolation model selected from the group consisting of:

an assumed mathematical function interrelating responses at ends of each sequence with scan positions within each sequence; and

a succession of levels separately measured for media-point responses during a preliminary precalibration scan.

36. The apparatus of claim 35, wherein:

the preliminary precalibration scan is not made automatically in field operations but only at the factory.

37. The apparatus of claim 35, wherein:

the preliminary precalibration scan is made automatically in field operations but is not applied in absolute terms, and rather is used only for proportioning interpolation between two responses obtained at ends of each sequence of patches.

38. The apparatus of claim 35, wherein:

the processor operating portions include means for printing the patches, within each sequence, in alternation between two extreme thitherto-unprinted tonal values of the sequence;

whereby for each color, to roughly stabilize the temperature of an associated printhead:

highest and lowest tones appear side by side at one end of each sequence, and

two closest-valued middle tones appear side by side at an opposite end of each sequence.

39. The apparatus of claim 35, wherein:

the processor operating portions include means for printing the patches, within each sequence, in alternation between two most-nearly-central thitherto-unprinted tonal values of the sequence;

whereby for each color, to roughly stabilize the temperature of an associated printhead:

two closest-valued middle tones appear side by side at an one end of each sequence, and

highest and lowest tones appear side by side at an opposite end of each sequence.

40. An apparatus for printing an image hardcopy on a printing medium; said apparatus comprising:

at least one printhead for marking on such medium;

a processor for controlling the at least one printhead to discharge inkdrops in a pattern to form such image; and

means for color-calibrating the at least one printhead; said means comprising:

portions of the processor for operating the at least one printhead to form a color-calibration test pattern on such medium,

at least one light source for scanning across the test pattern to illuminate the pattern at plural scan positions,

a sensor for scanning across the pattern, with the at least one source, to measure illuminated colors at the scan positions,

guide means establishing a spacing between such printing medium and at least a portion of the sensor; said guide means being subject to tolerances that lead to nonuniformity of the spacing, at the scan positions,

means for interpreting measurement signals from the sensor, to correct the sensor output signals for variation due to said nonuniformity of the spacing;

said interpreting means comprising processor portions for:

also scanning the sensor across an unprinted region of the medium to obtain respective unprinted-medium tonal-reference calibration levels for the scan positions,

isolating measurement-signal segments representing the tonal-reference calibration levels for the scan positions, and

applying the isolated signal segments to correct the measurement signals due to the measured illuminated colors.